Book Reviews

Biochemistry and Biology of DNA Methylation

Edited by Giulio L. Cantoni and Aharon Razin

Alan R. Liss; New York, 1985

xv + 324 pages. £40.00

This book, Vol. 198 in the series 'Progress in Clinical and Biological Research', represents the Proceedings of a Fogarty International Center Conference held in Bethesda, Maryland, April 17–19, 1985.

The 24 contributions provide a relatively good up-to-date account of research on DNA methylation in eukaryotic systems, sub-divided into 5 sections under the headings: Methylation and Structure of Eukaryotic DNA, Enzymology and Regulation of DNA Methylation in Eukaryotes, and the Relation of DNA Methylation to Gene Activity, to X Chromosome Inactivation, and to Differentiation and Tumorigenesis.

In contrast to the situation with bacterial systems, where the role of DNA methylation in the modification and restriction phenomenon was elucidated some time ago, the findings reported in this volume clearly demonstrate that a good deal remains to be done to clarify the precise role of DNA methylation in gene activity and expression in mammalian systems.

Amongst the broad range of topics covered, undoubtedly the most pertinent is the enzymology of DNA methylation. As underlined in the 'Concluding Remarks' by Walter Gilbert (who, in his own words, is not a "methylologist"), and emphasized also by Giulio Cantoni and Aharon Razin in their Preface, there is a striking lack of concrete information about the specificity anticipated from these enzymes. If they are indeed methylating new sequences at different periods and at different sites in the genome, presumably in such a manner as to control gene expression in different tissues, it is important to bear in mind that insects do this quite naturally without DNA methylation.

While this volume is undoubtedly indispensable to researchers in various disciplines, it is to be regretted that no record of the discussion sessions is included. Bearing in mind the widespread interest in, and potential significance of, DNA methylation in vertebrate systems, access to the relevant discussion questions and answers would have been a valuable adjunct to such a volume. Nonetheless the Editors and Publisher are to be commended on the rapidity with which this volume was made available.

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